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ONTARIO COLLEGE OF EDUCATION
DEPT. OF EDUCATIONAL RESEARCH
WITHDRAWN
UNIVERSITY OF TORONTO

Suggestions

for

Improvement

of

Rural School Grounds

ISSUED BY AUTHORITY OF
THE MINISTER OF EDUCATION

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ONTARIO DEPARTMENT OF EDUCATION

Suggestions

for

Improvement

of

Rural School Grounds

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Improvement of
Rural School Grounds

INTRODUCTION

A COMMITTEE representing the Departments of Agriculture, Education and Lands and Forests has been engaged for some time in preparing the material contained in this booklet. It is hoped that the information offered will be of value to trustees, inspectors and teachers in relation to the care and improvement of rural school grounds. The care given school grounds at present varies greatly. A recent survey, covering 75% of the elementary schools, shows that 25% have improved grounds, 41% are partially improved, and 34% have had no care or have not been improved. These facts may be verified in general by anyone who drives through the country during the summer.

Under the Schools Act and the Regulations for elementary schools, the responsibility for the size and care of school grounds rests with the school board. Teachers are responsible for the preservation of shade trees and the neat appearance of the playgrounds. In schools in which Agriculture is taught, the care of the school grounds is definitely a part of the instruction. The cost of a lawn mower, flower seeds, bulbs, perennial plants, shrubs and trees, which are used by the pupils as a part of the instruction, may be charged to the agricultural grant. Other grants are also available to boards for fencing or enlarging the school grounds (50% of the expenditures on improvements of a standard which can be approved by the inspector).

It is recognized that each school presents an individual problem because of the following varying conditions: the area of the school grounds; the size of the school building and its location on the property; the direction in which the property faces and its boundaries; the kind and condition of the soil; the programme of improvement already undertaken; the presence or absence of a suitable fence around the property; the provision for or lack of a school garden. It is impossible to detail instructions covering individual schools, but it is expected that local authorities will be able to adapt, to suit their individual needs, the general information hereafter detailed.

ESSENTIAL FEATURES OF IMPROVEMENT

Four fundamental steps should be recognized.

1. Care of the school grounds as they are. This activity is possible in every school and the following procedure is suggested in which pupils should provide the labour when school is in session:

(*a*) All dried grass, weeds, leaves or other refuse should be gathered in piles. Dried grass and leaves may be put in a pile in an out-of-the-way place, covered with soil and used the next year on the flower and shrubbery beds. Weeds and other refuse, when dried, should be piled at a safe distance from buildings or fences and burned. Weeds which have gone to seed should not be ploughed or dug under.

(*b*) A lawn mower with wheels at least 10 inches in diameter should be purchased. The area at the front and sides of the school, and preferably the whole yard, should

be cut with the lawn mower. Depressions may be filled with soil and packed down or rolled. A lawn roller is a valuable addition to school equipment. Many areas, if kept cut through one season, will show a good stand of grass as most of the weeds are annuals and are destroyed. The area uncut by the lawn mower should be cut at least three times during the season with a farm mower to keep down weeds and promote the growth of grass. These activities should include care of the roadside in front of the property.

(*c*) All dead wood should be removed from trees and shrubs on the school grounds.

(*d*) Wire fences which have sagged should be tightened. Missing boards or pickets in wooden fences should be replaced. Paint of a suitable colour such as white, light grey or red, applied to fence posts and board or picket fences will greatly improve the appearance of the school property.

(*e*) The trustees should provide for the care of the grounds and school garden, where there is one, during the summer months so that the efforts of the teacher and pupils in the spring will not be lost.

(*f*) Planting of flower beds already laid out should be done at the proper time and suitable care given until the close of school in the spring, and again when school reopens in the fall.

2. The planting of trees around the school boundaries and elsewhere on the school grounds may next be considered. Suitable trees may be transplanted from nearby woods. Small trees obtained from the Forestry Branch may be planted, preferably in permanent locations on the school grounds. If planted in nursery rows they should

be well cared for and set in the permanent location within three years. (Trees from the Forestry Branch should be ordered before April 30th.) Full information concerning this subject is given in the booklet "Trees for Schools" which may be secured on application to the Ontario Forestry Branch, Parliament Buildings, Toronto.

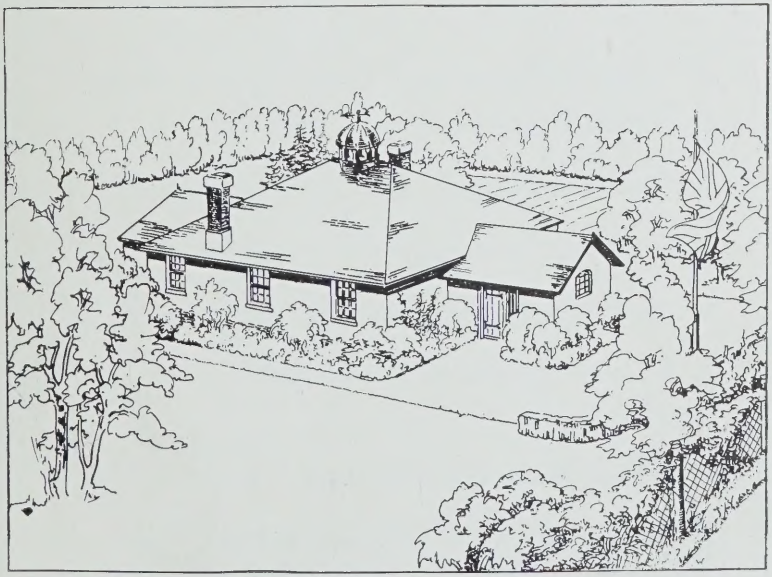
3. Suitable shrubs may be planted in locations on the school grounds which will not interfere with playground areas or with access of light to schoolrooms. Foundation planting around the building is most important. Annual care of shrubs after planting is essential.

4. The selection of areas for and the planting of flower beds containing perennials, bulbs and annuals should be carried out in every school. In some cases construction of a rock garden may be undertaken.

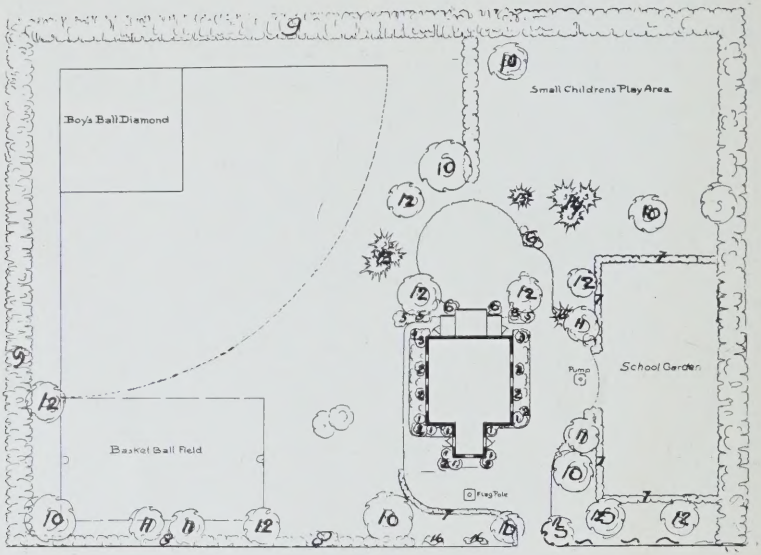
THE DEVELOPMENT OF A PLAN

While marked improvement will follow adoption of the suggestions given above, it is essential that a general plan for any particular school be drawn up and followed. This plan should be prepared locally. The teacher and pupils may develop the plan and submit it to the board for approval. The assistance of horticulturists or other interested parties in the community may be secured in preparing the plan. The final drawing should be made on cardboard or other permanent material and kept safely so that it may be available for use each succeeding year. The pictures and paragraphs which follow are submitted as a general guide in preparing such a plan.

1. A—A school with unimproved grounds.



1. B—As the above grounds might appear several years after planting.

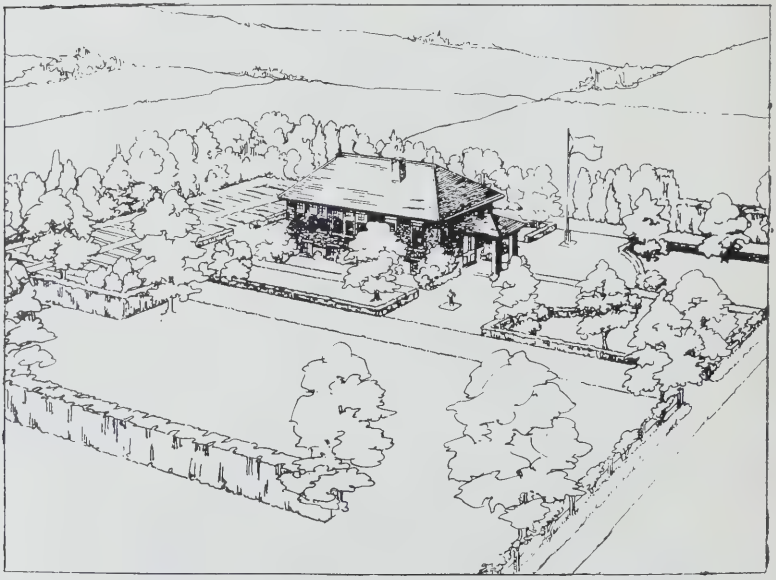


1. C—Plan of planting for the improvement indicated in 1. B.

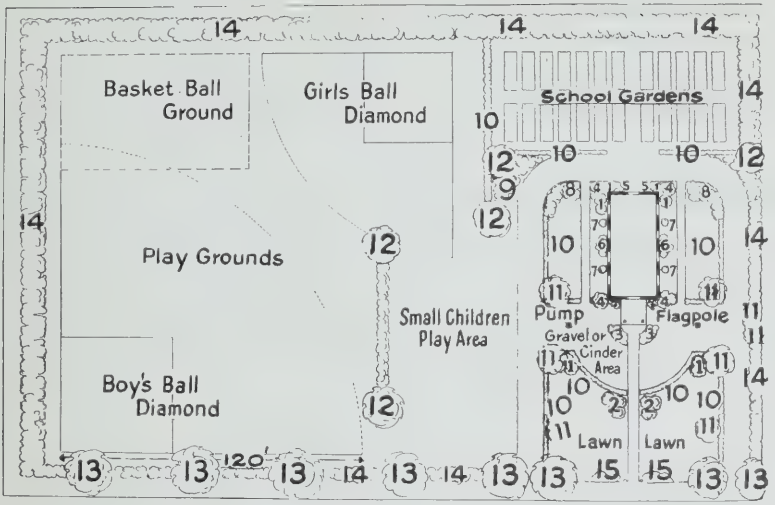
1. D—Planting Key.
    1. Argute Spiraea—Spiraea arguta (5 ft.)
    2. Japanese Barberry—Berberis thunbergii (4 ft.)
    3. Morrowi Honeysuckle—Lonicera morrowii (8 ft.)
    4. Snowberry—Symphoricarpus racemosus (5 ft.)
    5. Cutleaved Elderberry—Sambucus nigra laciniata (8 ft.)
    6. Tatarian Honeysuckle—Lonicera tatarica (8 ft.)
    7. Hedge of Common Cedar—Thuya occidentalis *or* Privet—Ligustrum amurense

8. Shrubs such as:
   Common Lilac—Syringa vulgaris
   Common Elderberry—Sambucus canadensis
   or Wayfaring tree—Viburnum lantana
9. Windbreak of Spruce, Cedar or Pines or mixed with deciduous trees
10. American Elm—Ulmus americana
    or Red Oak—Quercus rubra
11. Basswood—Tilia americana
12. Hard maple—Acer saccharum
13. White Spruce—Picea canadensis
14. Scotch Pine—Pinus sylvestris
15. Red Pine—Pinus resinosa
16. Climbers such as:
    Bittersweet, Virginia Creeper, Wild Grape, Wild Clematis

2. A—A modern school building but with unimproved grounds.



2. B—As the above building and grounds might appear several years after planting.



2. C—Plan of planting for the improvement indicated in 2. B.

2. D—Planting Key.

1. Cutleaved Elderberry—Sambucus nigra laciniata
   or Tatarian Honeysuckle—Lonicera tatarica (8 ft.)
2. Bridal Wreath—Spiraea van houttei (7 ft.)
   or Beauty Bush—Kolkwitzia amabilis
3. Japanese Barberry—Berberis thunbergii (4 ft.)
   or Dwarf Pea Shrub—Caragana pygmaea.
4. Red Barked Dogwood—Cornus siberica alba
   or Mock Orange—Philadelphus lemoinei bouquet blanc
5. Engelmann's Ivy—Ampelopsis quinquefolia
   or engelmannii
   or Euonymus—Euonymus vegetus
6. Snowberry—Symphoricarpus racemosus (for shade) (5 ft.)
   or Goldenbell—Forsythia suspensa (for sunny position)

7. Morrowi Honeysuckle—Lonicera morrowii (for shade)
   or Double Flowering Almond—Prunus triloba (for sunny position)
8. Shrubs such as:
   Common Lilac—Syringa vulgaris, *and*
   Tatarian Honeysuckle—Lonicera vulgaris (8 ft.)
9. Shrubs such as:
   Cornelian Cherry—Cornus mascula
   Golden Ninebark—Spiraea opulifolia aurea, *and*
   Tatarian Honeysuckle—Lonicera tatarica rosea
10. Hedge of Common Cedar—Thuya occidentalis
    or Privet—Ligustrum amurense
11. Mountain Ash—Sorbus aucuparia
    or Japanese Lilac—Syringa japonica
12. Basswood—Tilia americana
    or Cutleaved Maple—Acer saccharinum wieri
13. American Elm—Ulmus americana
    or Hard Maple—Acer saccharum
14. Windbreak of Spruce, Cedar or Pine *or* mixed with deciduous trees.
15. Climbers for over fence such as:
    Bittersweet, Virginia Creeper, Wild Grape, Wild Clematis

Full information is given in the above plans concerning trees and shrubs, hedges and climbing plants. Lawn areas are also shown. Space along the fences and walks, around the building and in the school garden, may be used for flower beds. If desired some of the areas indicated for planting shrubs might be used for flowers. Details concerning various activities related to the development of the above schemes of planting are given in subsequent paragraphs.

THE MAKING AND CARE OF THE LAWN

As previously mentioned, in many cases a good lawn may be secured by starting early in the spring to cut the area with the lawn mower, the roller being lowered so that the knife is 1 to 1½ inches above the ground. Hollows and depressions may be filled by scattering fine loamy soil over the area and raking it in. Application of a complete fertilizer such as 4-8-10, 4-12-6 or 2-12-6 mixed with sand or soil at the rate of 1 lb. of fertilizer per 150 square feet will improve growth. Manure will serve the same purpose if scattered on the surface early in the spring, but a fertilizer is preferable as it contains no weed seeds. The lawn should be cut about once a week during the whole season. The mower knife should not be lower than 1 to 1½ inches or the grass will turn brown quickly during dry weather. Rural school grounds cannot as a rule be watered during the summer as are those in urban areas, and the above practice will help to keep the grass green except in extended dry periods.

Areas which are too uneven to be treated as suggested above should be ploughed and levelled late in June or early in July. Where underdrainage is necessary the drains should be installed before the grading is done, preferably during the previous fall. If the soil on the surface after levelling is a heavy clay, a few loads of muck or sandy soil should be applied and worked in by discing and harrowing. If the soil is a light sand, clay loam should be used. The application of barnyard manure before ploughing will improve final results. The use of fresh manure on the levelled surface is not recommended because of the weed seeds which are usually present. The area should be worked during July and August to destroy

weeds and promote good tilth. Before the final working an application of the fertilizer mentioned in the above paragraph is recommended. Early in September the pupils should work and level the area, using garden rakes. The seed may be sown broadcast, covering the area twice, first from east to west and then from north to south. To protect the young grass and make possible earlier use of the playgrounds, it is suggested that fall rye or fall wheat (3 to 4 lbs. per 1,000 square feet) be sown with the grass seed. After seeding the area should again be lightly raked and if possible rolled with a lawn roller. The following grass mixtures are recommended: for lawn areas—10 lbs. Kentucky Blue Grass, 10 lbs. Red Top Grass and 5 lbs. White or Dutch Clover (1 to 1½ lbs. of the mixture for 200 sq. ft.); for playground areas—7 lbs. Kentucky Blue Grass, 3 lbs. Timothy and ¼ lb. White or Dutch Clover (1 to 1½ lbs. of the mixture for 200 sq. ft.). The first mixture may be used for playground seeding if desired.

The care of the area after seeding is most important. As soon as the fall rye or fall wheat has reached a height of 6 inches, it should be cut with a scythe or farm mower. If a lawn mower is used the first cutting should be made when the grain is about 4 inches high, the mower knife being about 2 inches from the ground. If fall rye or fall wheat is not used, the grass may be first cut when about 3 inches high, with the mower knife 1 to 1½ inches from the ground. Regular cutting should be continued during the fall until frost. In the spring the area should be raked and rolled and cutting continued with the lawn mower. Similar practices may be followed for spring seeding, though fall seeding is preferable in Southern Ontario if done before September 10th. Where local conditions make it desirable, one-half the school grounds could be prepared and sown in the spring and the other half in the fall, or the work might be spread over two years.

PLANTING TREES AND SHRUBS

Full instructions for planting trees are given in the booklet "Trees for Schools" previously mentioned, but brief directions are herewith repeated. Planting is usually done in the early spring. A circular hole one-half wider in diameter than the roots of the trees when spread out should be dug to a depth of six inches deeper than required for the roots. The lower six inches should be filled with good surface soil to which well-rotted manure has been added. The tree should then be held in place by one pupil so that the roots spread evenly over the bottom of the hole. If the roots are long or coarse, two or three inches at the ends may be cut off with a sharp knife or pruning shears. Fine soil with manure added should then be filled in to cover the roots, and be tramped down. The rest of the soil should then be put in and packed firmly, leaving a depression at the centre around the tree.

A pail of water should be added so that it will soak down to the roots. Water is sometimes added when the hole is half filled with earth. The tree should be planted at the same depth as before it was moved. In transplanting trees or handling trees received from a nursery the roots should never be allowed to dry out. If trees cannot be planted at once they should be placed in a shallow trench and the roots covered with soil (heeled in). Trees should be planted at least two feet from fences and four or more feet from walks and buildings. After planting deciduous trees the lower branches which may not be needed should be cut off close to the bark and the remaining branches pruned to give the trees the desired form. Conifers should not be pruned. Removal of branches each year is necessary in young trees until the desired shape is formed; in older trees dead and undesirable branches should be removed each year. In cutting off

branches they should always be cut close to the parent stem. When a saw is used to remove large limbs, a cut ⅓ the diameter of the branch should be made on the under side six inches from the trunk. The limb is then cut off from the top an inch or two nearer the trunk. Then the remaining stub may be cut off close to the bark without danger of injury from splitting because of the weight of the limb.

A similar procedure may be followed for planting shrubs as for planting trees. The roots should always be lightly pruned before planting. The ends of the branches except in early spring flowering shrubs such as spirea and forsythia may also be cut back. Shrubs should always be planted from two to four feet from the walls of a building. Annual pruning of shrubs is essential. Spirea, forsythia, lilac and other shrubs which bloom early in the spring should be pruned after flowering. Others such as honeysuckle and syringa which produce flowers on new spring growth may be pruned during the winter or early spring or after flowering. The branches of most shrubs grow from near the ground and in annual pruning it is essential to thin the branches as well as to cut them back. Too often pruning is done by cutting off the end of the branches only. This faulty practice results in a thick mass of branches many of which produce no flowers and ultimately die.

THE PLANTING AND CARE OF FLOWER BEDS

The location of flower beds must be determined by local conditions. They may be placed along fences, at the sides of the walks or in suitable locations on the lawn. In many schools borders of perennial or annual flowers are

arranged in the school garden. In some schools rows of annual flowers are alternated with small vegetables in the plots.

For average soils, preparation for flower beds consists of digging the area to a depth of twelve to eighteen inches and mixing manure with the soil in the process. Sod should be turned completely under and care taken to avoid bringing the roots to the surface in subsequent cultivation. Application of three or four inches of loamy soil is often desirable and is essential in heavy clay or light sandy soils. The surface should be thoroughly worked with the hoe and rake. The final level of the flower bed may be the same or slightly higher than the surrounding area, but should not be lower. Perennial borders should seldom exceed four feet in width. As a rule tall plants are placed at the back, plants of medium height next and low plants at the front. Annuals may frequently be used to advantage between the early flowering perennials or at the front of the border. If the border is exposed on two sides tall growing plants should be placed in the centre.

Perennial plants may be propagated by dividing established plants. This may be done in early spring or late fall. They may be grown also from seed which is planted out of doors in July or August. The plants may be transplanted to the border the following spring. Few perennials started in hotbeds or boxes in the spring produce bloom the same season. Annual plants are propagated from seed which may be sown early in hotbeds or plant boxes and transplanted in May. Many annuals may be sown directly in the flower bed in April or early May. Those which are most suited for this purpose will be mentioned in the list of annual flowers.

Perennial plants may be planted from fifteen to thirty inches apart in the border. A hole of suitable diameter

and depth is made with a spade or garden trowel and the plant set in. The soil is then packed in around the roots. Care should be taken to place the plant so that the crown of the plant is just level with the surface. Iris and peonies must not be set too deep. In transplanting annuals a small hole may be made with a pointed stake about eight inches long and one to one-and-a-half inches in diameter (a dibble). The seedling is then placed against one side of the hole and the earth pressed into place. Watering of plants when planted and once a day for a few days after is desirable. Cultivation of the soil around the plants should be done regularly to destroy weeds and keep the soil loose. For this purpose a small triangular hoe or a dutch hoe is best, though any kind of a hoe will do.

The following lists of perennials and annuals should provide a suitable selection for most schools. For further information the reader is referred to seed catalogues and books on flower growing, and to local flower growers.

PERENNIAL PLANTS

(*a*) Tall plants, over three feet, for the rear of the perennial border.

Botanical Name	*Common Name*	*Time of Flowering*	*Colour*	*Height*
Aconitum napellus	Monkshood	July-Aug.	Blue	3-6 ft.
Altheae rosea	Hollyhock	July-Sept.	Various	6-8 ft.
Anchusa italica	Dropmore	June-Aug.	Blue	3-5 ft.
Aster, numerous species	Michaelmas Daisy	Oct.-Nov.	Various	3-4 ft.
Delphinium hybrids	Larkspur	June-July	Blue-White	3-7 ft.
Helenium autumnale	Helensflower	Aug.-Sept.	Yellow	4-5 ft.
Helianthus maximiliani	Sunflower	Aug.-Sept.	Yellow	4-5 ft.

(*b*) Plants of medium height, one to three feet, for the centre or in some cases for the rear of the border.

Botanical Name	*Common Name*	*Time of Flowering*	*Colour*	*Height*
Aquilegia clematiflora	Columbine	May-July	Various	2-3 ft.
Chrysanthemum maxima	Shasta Daisy	June-Aug.	White	2-3 ft.
Coreopsis grandiflora	Tickseed	All summer	Yellow	2-3 ft.
Dianthus barbatus	Sweet William	June-July	Red-Pink	1½-3 ft.
Gaillardia grandiflora	Blanket Flower	All summer	Red and Yellow flowers	2 ft.
Gypsophila paniculata	Baby's Breath	May-July	Numerous small white flowers	2-3 ft.
Iris germanica	"Flags"	May-June	Various	1-3 ft.
Monarda fistulosa didyma	Wild Bergamot Oswego Tea	July-Aug.	Red	2-3 ft.
Paeonia officinalis	Common Peony	May-June	Various	2-3 ft.
Papaver orientale	Oriental Poppy	May-June	Various	2-3 ft.
Pyrethrum hybridum	Painted Daisy	Often all summer	Various	1-2 ft.
Phlox paniculata	Perennial Phlox	July-Aug.	Various	2-3 ft.
Veronica incana	Speedwell	July-Aug.		1-2 ft.

(*c*) Plants one foot or less in height, for use along the edge of the border or in rockeries.

Botanical Name	*Common Name*	*Time of Flowering*	*Colour*	*Height*
Alyssum saxatile	Golden Tuft	April-May	Yellow	1 ft.
Arabis alpina	Rock Cress	Early spring	White	6 inches
Dianthus plumarius	Hardy Pink	June-July	Various	1 ft.
Iberis sempervirens	Candytuft	June-July	White	1 ft.
Myosotis palustris	Forget-me-not	All summer	Blue	9 inches
Papaver nudicalis	Iceland Poppy	May-Oct.	Various	1 ft.

NOTE: The above lists are not exhaustive, but will be found satisfactory by those who are starting a perennial border. It is not intended, however, that the planting be confined alone to the plants given.

FALL PLANTED BULBS

Tulips, hyacinths, narcissus, daffodils, crocus and other bulbs are perennials. These may be planted in rows or in groups in the border at any time from the middle of September until frost. The depth of planting should be approximately 2½ to 3 times the diameter of the bulb. The soil should be well worked before planting and pressed down firmly after planting. After the ground freezes they should be covered with leaves or straw, which should be removed in the spring.

PLANTS REQUIRING SPECIAL ATTENTION

Dahlias, cannas and gladioli must be lifted in the fall and the underground parts stored in a cool, moderately dry cellar during the winter. They are then planted in the spring after danger of frost is over. It is usual to start canna plants in pots or boxes before planting in the border. Readers interested in the growing of these plants are advised to seek further information in books covering the topic. Growing of these plants is not recommended as a rural school project except where the teacher is particularly interested.

Roses are shrubs which require special care and attention. A fine display can be secured when given the proper care. Climbing roses might be set out along fences and result in a good showing in the spring. However, roses generally require considerable care during the summer months and only in exceptional cases, where this care is assured, should roses be set out in rural school grounds.

ANNUAL PLANTS

All plants listed below except asters and lobelia may be grown from seed sown out-of-doors in the flower bed after danger of frost is past. Earlier bloom, however, will be secured when plants are started indoors in boxes or outside in a hotbed. The dates of flowering will vary according to the time of sowing, but are within the times given in the tables.

(*a*) Tall plants over three feet in height.

Botanical Name	*Common Name*	*Time of Flowering*	*Colour*	*Height*
Cosmea bipinnatus	Cosmos	July-Oct.	Various	3-5 ft.
Helianthus annuus	Sunflower	Aug.-Sept.	Yellow	4-8 ft.

(*b*) Plants of medium height, one-and-a-half to three feet in height.

Botanical Name	*Common Name*	*Time of Flowering*	*Colour*	*Height*
Antirrhinum majus	Snapdragon	July-Oct.	Various	2-3 ft.
Calendula officinalis	Calendula Pot Marigold	July-Oct.	Various	1½-2 ft.
Callistephus chinensis	Aster	Aug.-Oct.	Various	2-3 ft.
Celosia cristata	Cockscomb	Aug.-Oct.	Red and	1½-2 ft.
C. plumosa	Princess Feather		Yellow	
Centaurea cyanus	Cornflower Bachelor's Button	July-Sept.	Blue and other	2 ft.
Kochia trichophila	Summer Cypress	Green foliage turning red in fall		2-2½ ft.
Nicotiana sylvestris	Nicotine Flowering tobacco	July-Sept.	White	2-3 ft.
Salpiglossis sinuata	Painted Tongue	July-Oct.	Various	1½-3 ft.
Tagetes erecta	African Marigold	July-Oct.	Yellow	2-3 ft. often higher
Zinnia elegans	Zinnia	July-Oct.	Various	1½-3 ft.

(c) Plants less than one-and-a-half feet in height.

Botanical Name	*Common Name*	*Time of Flowering*	*Colour*	*Height*
Ageratum houstonianum	Ageratum	July-Oct.	Blue	6-10 inches
Alyssum maritimum	Sweet Alyssum	July-Oct.	White Lilac	9-12 inches
Eschscholtzia california	California Poppy	June-Oct.	Various	1 ft.
Iberis amara Iberis umbellata	Candytuft	July-Oct.	White Purple	1 ft.
Lobelia erinus	Lobelia	July-Sept.	Blue	6 inches
Petunia hybrida	Petunia	July-Oct.	Various	12 inches
Phlox drummondi	Drummond Phlox	June-Sept.	Various	1-1½ ft.
Portulaca grandiflora	Portulaca	July-Sept.	Various	8 inches
Reseda odorata	Mignonette	July-Sept.	Greenish-Yellow	1-1½ ft.
Tropaeolum minor	Dwarf nasturtium	July-Sept.	Various	8-15 inches

REFERENCE BOOKS

Teachers and others interested will find much useful information in the catalogues of nurseries and seed firms.

The first of the following books and one or two of the others should be in every rural school library. The cost may be charged to the agricultural grant.

	List Price
Garden Guide. A. T. DeLaMare Co. Inc.	$3.00
1001 Garden Questions Answered. *A. C. Hottes.* A. T. DeLaMare Co. Inc.	3.00
The Book of Annuals. *A. C. Hottes.* A. T. DeLaMare Co. Inc.	2.25
The Book of Perennials. *A. C. Hottes.* A. T. DeLaMare Co. Inc.	3.00
The Culture of Flowers. *H. J. Moore*	1.25
Canadian Home Gardening. *A. B. Cutting.* Musson Book Company	1.75

The General Publishing Company, 17 Queen St. East, Toronto, are agents for the first five books listed. The last book may also be secured from this firm or from the publisher.

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